Condensed Matter Physics

AGFM STUDIES OF MAGNETIC PROPERTIES FOR FePt:C NANOCOMPOSITE THIN FILMS

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Magnetic moment-decay measurements were performed on thin-film FePt:C using an alternating gradient force magnetometer (AGFM). Samples with C concentrations ranging from 0 – 63 vol% and annealing conditions of 600° C for 600 s and 700° C for 600 s were examined. This relatively new technique of measuring magnetic moment-decay allows us to estimate the thermal stability factor K_uV/k_BT, the anisotropy constant, and the magnetic switching volume by making only a single set of measurements. The measurements show that FePt:C has a high anisotropy constant and small switching volume, making it a possible contender for high-density magnetic recording media.